

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Original): An asphalt composition comprising:

asphalt;

a rubber or elastomeric polymer present in an amount no greater than about 12% by weight of said asphalt composition; and

at least one crosslinkable component present in an amount of about 0.05 % to about 3% of said asphalt composition, wherein said component is selected from the group consisting of a bismaleimide and a bismaleimide in combination with a difunctional crosslinkable monomer.

Claim 2 (Original): The asphalt composition according to Claim 1, wherein said difunctional crosslinkable monomer is selected from the group consisting of divinylbenzene, diallylphthalate, diallylmaleate, ethoxylated bisphenol A dimethacrylate, polyethylene glycol dimethacrylate, polyethylene glycol diacrylate, polybutadiene dimethacrylate, and combinations thereof, and wherein said difunctional crosslinkable monomer is present in an amount of about 0.1% to about 3% by weight of said asphalt composition.

Claim 3 (Original): The asphalt composition according to Claim 1, further comprising a polymerizable monomer solvent in which said crosslinkable component is dissolved prior to addition to said asphalt.

Claim 4 (Original): The asphalt composition according to Claim 3, wherein said solvent is selected from the group consisting of styrene, N-vinylpyridine, vinyl pyrrolidone, and combinations thereof.

Claim 5 (Original): The asphalt composition according to Claim 1, further comprising a free radical initiator.

Claim 6 (Original): The asphalt composition according to Claim 5, wherein said free radical initiator is selected from the group consisting of peroxides, hydroperoxides, peroxyesters, and azo compounds.

Claim 7 (Original): A method of treating a polymer modified asphalt composition, comprising the step of adding at least one crosslinkable component to the modified asphalt composition, wherein the crosslinkable component is selected from the group consisting of a bismaleimide and a bismaleimide in combination with a difunctional crosslinkable monomer.

Claim 8 (Original): The method according to Claim 7, further comprising the step of dissolving the at least one crosslinkable component in a polymerizable monomer solvent prior to the step of adding the at least one crosslinkable component to the modified asphalt composition.

Claim 9 (Original): A method of treating an asphalt composition, comprising the steps of: heating the asphalt; adding a rubber or elastomeric polymer to the heated asphalt; and adding at least one crosslinkable component to the heated asphalt, thereby curing the rubber or elastomeric polymer, wherein the crosslinkable component is selected from the group consisting of a bismaleimide and a bismaleimide in combination with a difunctional crosslinkable monomer.

Claim 10 (Original): The method according to Claim 9, wherein the step of adding a rubber or elastomeric polymer to the heated asphalt further comprises the steps of:

dissolving the rubber or elastomeric polymer in a polymerizable monomer solvent to form a polymer solution; and
adding the solution to the heated asphalt.

Claim 11 (Original): The method according to Claim 10, wherein the step of adding at least one crosslinkable component to the heated asphalt further comprises the step of adding the at least one crosslinkable component into the polymer solution prior to adding the solution to the heated

asphalt.

Claim 12 (Original): The method according to Claim 9, further comprising the step of adding a free radical initiator to the asphalt composition.

Claim 13 (Original): The method according to Claim 9, further comprising the step of adding an aromatic oil to the heated asphalt to improve low temperature performance of the asphalt.

Claim 14 (Original): The method according to Claim 13, wherein the aromatic oil is chosen from furfural extraction products.

Claim 15 (New): An asphalt composition comprising:

- a. asphalt,
- b. about 2-25 pbw rubber per 100 pbw asphalt, and
- c. at least one bismaleimide.

Claim 16 (New): The composition of claim 15 wherein said rubber comprises polydiene.

Claim 17 (New): The composition of claim 16 wherein said polydiene comprises monomer units selected from the group consisting of 1,3- butadiene, isoprene, 2,3-dimethyl-1,3-butadiene, and 1,3-pentadiene, and mixtures thereof.

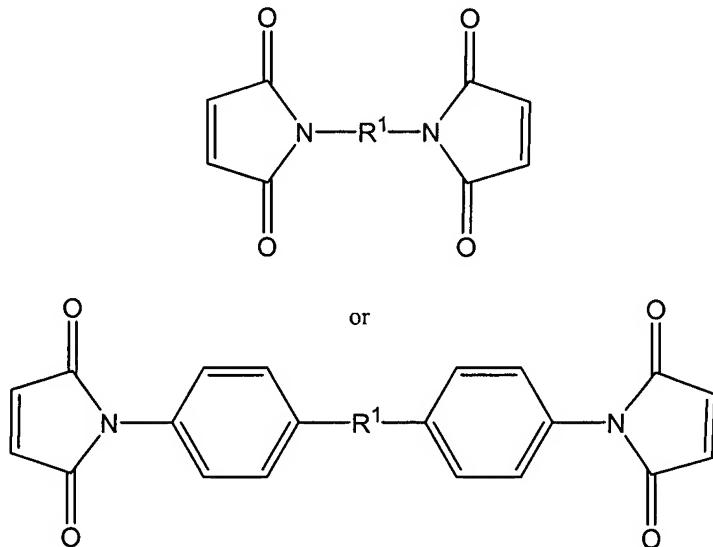
Claim 18 (New): The composition of claim 17 wherein said polydiene is poly(1,3-butadiene).

Claim 19 (New): The composition of claim 16 wherein said rubber further comprises vinyl-substituted aromatic hydrocarbon monomer units.

Claim 20 (New): The composition of claim 19 wherein said vinyl- substituted aromatic hydrocarbon monomer units are selected from the group consisting of styrene, α -methylstyrene, 1-vinylnaphthalene, 2- vinylnaphthalene, 1- α -methyl vinylnaphthalene, 2- α -methyl

vinylnaphthalene, as well as alkyl, cycloalkyl, aryl, alkaryl, and aralkyl derivatives thereof, and di- or tri- vinyl substituted aromatic hydrocarbons, and mixtures thereof.

Claim 21 (New): The composition of claim 15 wherein said bismaleimide is represented by the general formulas:



and mixtures thereof, wherein R¹ is one or more of an aromatic group, an aliphatic group, a cycloaliphatic group, and an aliphatic group containing siloxane.

Claim 22 (New): The composition of claim 15 wherein said bismaleimide is selected from the group consisting of N,N'-ethylene-bis- maleimide, N,N'-butylene-bis-maleimide, N,N'- phenylene-bis-maleimide, N, N'-hexamethylene-bis-maleimide, N,N'-4,4'-diphenyl methane-bis- maleimide, N,N'-4,4'-diphenyl ether-bis-maleimide, N,N'-4,4'-diphenyl sulfone-bis- maleimide, N,N'4,4'-dicyclohexyl ethane-bis-maleimide, N,N'-xylylene-bis- maleimide, N,N'-diphenyl cyclohexane-bis-maleimide, N,N'-(m-phenylene) bismaleimide, N,N'-(p-phenylene)- bismaleimide, N,N'-(p- tolylene) bismaleimide, N,N'-(methylenedi-p-phenylene)-bismaleimide, N,N'-(oxydi-p- phenylene)bismaleimide, α,α -bis-(4-phenylene)-bismaleimide, N,N'-(m- xylylene)bis-citraconimide, α,α -bis-(4-maleimidophenyl)-meta- diisopropylbenzene, and mixtures thereof.

Claim 23 (New): The composition of claim 15 wherein said bismaleimide is added in the amounts between about 0.05 and 3 wt % of the asphalt composition.

Claim 24 (New): The composition of claim 15 having a softening point between about 55 and 95°C.

Claim 25 (New): A method for producing an asphalt composition comprising mixing at elevated temperatures:

- a. asphalt
- b. about 2-25 pbw rubber per 100 pbw asphalt, and
- c. at least one bismaleimide.

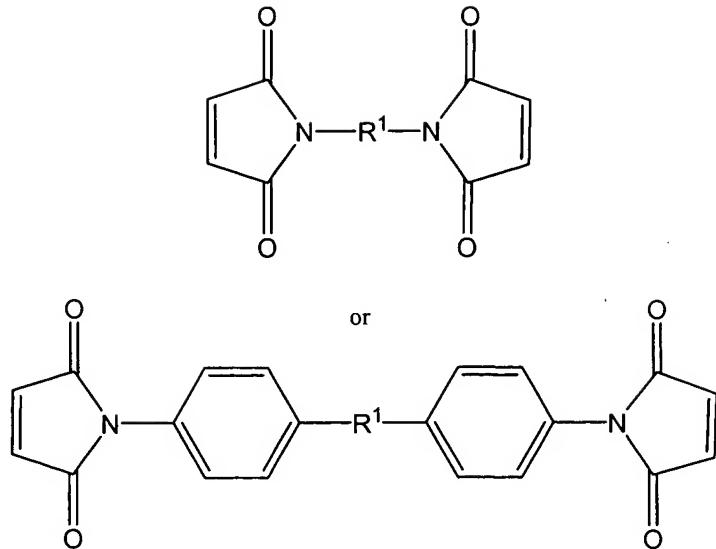
Claim 26 (New): The method of claim 25 wherein said rubber comprises polydiene.

Claim 27 (New): The method of claim 27 wherein said polydiene monomer contributed units are chosen from the group consisting of 1,3- butadiene, isoprene, 2,3-dimethyl-1,3-butadiene, 1,3-pentadiene, and mixtures thereof.

Claim 28 (New): The method of claim 27 wherein said polydiene comprises 1,3-butadiene monomer contributed units.

Claim 29 (New): The method of claim 27 wherein said rubber further comprises vinyl-substituted aromatic hydrocarbon contributed monomer units.

Claim 30 (New): The method of claim 26 wherein said bismaleimide is represented by the general formulas:



and mixtures thereof, wherein R¹ is one or more of an aromatic group, an aliphatic group, a cycloaliphatic group, and an aliphatic group containing siloxane.

Claim 31 (New): The method of claim 31 wherein said bismaleimide is selected from the group consisting of N,N'-ethylene-bis-maleimide, N, N'-butylene-bis-maleimide, N,N'-phenylene-bis-maleimide, N,N'- hexamethylene-bis-maleimide, N,N'-4,4'-diphenyl methane-bis-maleimide, N, N'-4,4'-diphenyl ether-bis-maleimide, N,N'4,4'-diphenyl sulfone-bis- maleimide, N,N'-4,4'-dicyclohexyl methane-bis-maleimide, N,N'-xylylene- bis-maleimide, N,N'-diphenyl cyclohexane-bis-maleimide, N,N'-(m-phenylene) bismaleimide, N,N'-(p-phenylene)-bismaleimide, N,N'-(p-tolylene) bismaleimide, N,N'-(methylenedi-p-phenylene)-bismaleimide, N,N'-(oxydi-p- phenylene)bismaleimide, [agr],[agr]-bis-(4-phenylene)-bismaleimide, N,N'-(m-xylylene)bis-citraconimide, [agr],[agr]-bis-(4-maleimidophenyl)-meta- diisopropylbenzene, and mixtures thereof.

Claim 32 (New): The method of claim 30 wherein said bismaleimide is added in the amounts between about 0.05 and 3 pbw of polymer.

Claim 33 (New): The method of claim 25 wherein the components are mixed together at a temperature between about 145 and 205°C. for between about 25 and 400 minutes.